University Faculty Attitudes Toward Disability and Inclusive Instruction: Comparing Two Institutions

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Abstract

It is increasingly important for postsecondary disability services personnel to provide targeted disability-related training to faculty rather than support college students with disabilities on a case-by-case basis. In this study, we examined faculty attitudes toward disability-related topics and inclusive teaching practices at two public four-year institutions using the Inclusive Teaching Strategies Inventory (ITSI). Findings suggest that malleable factors such as training opportunities positively affect faculty attitudes toward disability and inclusive instruction based on the tenets of Universal Design. Implications for practice specifically related to disability services personnel and faculty outreach strategies are discussed.

Keywords: Universal design, college faculty, college students with disabilities, college teaching, diversity, climate assessment, professional development

Today, students with disabilities comprise approximately 11% of the overall college student population (Horn, Peter, Rooney, & Malizio, 2002; Newman, Wagner, Cameto, & Knokey, 2009; Raue & Lewis, 2011). As this population continues to expand on most college campuses, disability is a growing facet of *diversity* in higher education (Stodden, Brown, & Roberts, 2011). The majority of students with disabilities in postsecondary schools have learning disabilities (LD), Attention Deficit Hyperactivity Disorder (ADHD), and mental health disorders (Raue & Lewis, 2011). These "nonvisible" disabilities typically require adaptations in instruction, course content delivery, and assessment. As such, college faculty face new challenges in planning for, delivering, and evaluating instruction.

Historically, university faculty have relied on disability services (DS) personnel for supporting students with disabilities. However, funding for DS on most campuses has not kept pace with the rapid expansion of this population of students. Moreover, new innovations such as Universal Design (UD) provide opportunities for student participation and success *without* extensive individualized accommodations and support. The various UD frameworks, such as Universal Design for Assessment ([UDA]; Thompson, Johnstone, & Thurlow, 2002), Universal Design for Instruction ([UDI]; Scott, McGuire, & Shaw, 2003), and Universal Design for Learning ([UDL]; Rose, Harbour, Johnston, Daley, & Abarbanell, 2006), promote faculty use of *inclusive* instructional practices. Therefore, many DS providers are redefining their roles to help faculty take responsibility for supporting the learning needs of students with disabilities (Bourke, Strehorn, & Silver, 2000). Thus, postsecondary DS providers face challenges in providing direct support to faculty to proactively support the learning needs of college students with disabilities particularly in the areas of (a) knowledge of disability-related laws and processes (e.g., accommodations) and (b) inclusive and accessible teaching practices (e.g., UD).

Recent evidence suggests that college faculty and teaching assistants place a high value on training that

focuses on inclusive instruction. In fact, Izzo, Murray, and Novak (2008) found that faculty rated UDL as the most needed training topic. Other findings suggest that faculty attitudes towards students with disabilities and the provision of accommodations can be improved by providing faculty with disability-related training based on UD principles (Lombardi & Murray, 2011; Murray, Lombardi, Wren & Keys, 2009; Murray, Lombardi, & Wren, 2010; Park, Roberts, & Stodden, 2012). However, despite the positive benefits associated with faculty training in UD principles, recent findings indicate that most postsecondary institutions devote limited resources to faculty training in this area (Raue & Lewis, 2011).

The current study was designed to develop further understanding about disability-related training and faculty-reported use of inclusive instructional practices. Faculty attitudes were assessed using a "climate assessment" approach (Stodden, et al., 2011) to gain a greater understanding of the quality of university life for students with disabilities. The survey was administered to faculty at two different institutions and included items that assessed prior participation in training, type of training, along with items that assessed the provision of inclusive teaching practices including the provision of accommodations, knowledge of disability law, accessible course materials, inclusive lecture strategies, inclusive classroom, inclusive assessment, and course modifications. We anticipated that prior participation in disability training would be associated with faculty attitudes towards inclusive instruction at two universities, and we also expected training type (e.g., more or less intensive) would be differentially associated with faculty attitudes. Finally, due to differences in funding faculty outreach initiatives, we anticipated possible differences due to institutional context.

Methods

Participants

This study was conducted at two four-year universities. University 1 is a medium-sized, public Midwestern university that has a long history of inclusion. The institution admitted students with physical disabilities prior to the passage of Section 504 of the Rehabilitation Act of 1973. The university has a nationally recognized Rehabilitation Institute with many academic programs that aim to better the lives of individuals with disabilities. At the time of data collection, the University had 1,621 faculty and 19,817 students. Overall, 78.2% of faculty were white, 11.8% were Asian/Pacific Islander, 3% were Hispanic, 6.1% were African American, 0.3% were Native American, and 0.6% were two or more races. There were more male (56%) than female (44%) faculty. The student population was 64.5% white, 2.1% Asian/Pacific Islander, 4.6% Hispanic, 18.6% African American, 0.4% Native American, 2.2% two or more races, 6.7% International, and 0.8% did not disclose race or ethnicity.

At the time of the study, there were more male (54%) than female (46%) students. The DS office served 457 students (approximately 2.3% of the overall student population). Of the students with disabilities, 45% were diagnosed with either a learning disability (LD) or Attention Deficit Hyperactivity Disorder (ADHD), 14.6% with a psychological disorder, 13.8% with a mobility impairment, 4.6% with a visual impairment, 3.7% with a brain injury, 3.5% with a hearing impairment, and 8% were diagnosed with either a chronic health, speech/language impairment, or "other" condition.

University 1 had "typical" or business-as-usual processes in place in regards to supporting students with disabilities. The DS office contacted faculty through departmental memorandums to inform them of procedural changes in the test accommodations process. New faculty were provided training on mandated accommodations by an Americans with Disabilities Act (ADA) compliance officer. The DS office routinely offered training with new teaching assistants on the academic accommodations process. These topics and other resources were made available on the DS website under a specific "For Faculty" link. The website included UD information and procedural information regarding the provision of accommodations. Lastly, at University 1, all faculty were invited to attend a 90-minute workshop that provided an introduction to Universal Design methods used in instruction. Approximately 30 faculty members attended the workshop and lunch was provided for all attendees.

Twenty-four percent (n = 381) of faculty at University 1 responded to our survey. The study sample reflected the population and included 203 males (53%), 156 females (41%) and 22 declined to report (6%). 78.7% of respondents were white, 6.3% were Asian/Pacific Islander (4%), 2.5% reported 2 or more races, 2.4% were Hispanic, 0.5% were American Indian/Alaskan Native, and 6% declined to report race.

University 2 is a medium-sized, public institution located in the Pacific Northwest. At the time of the study, there were approximately 21,000 students and approximately 1,200 tenure-line and instructional faculty. Overall, 82% of faculty were white, 7% were Asian/Pacific Islander, 3% were Hispanic, 1% was African American, 1% was Native American, and 1% was Multi-ethnic. Approximately 4% declined to report racial identity, and there are slightly more male (54%) than female (46%) faculty. At the time of study, there were 765 graduate and undergraduate students with disabilities (approximately 4% of the student population). At this university, the majority (70%) of students with disabilities were diagnosed with either a LD or ADHD, 10% were diagnosed with a psychological disorder, and the remaining 20% were diagnosed with another disability type, such as mobility, hearing, visual, speech impairments, health disability, brain injury, or seizure disorder. This distribution reflects national trends that show the fastest growing subgroup of college students with disabilities are those with LD or ADHD (Wolanin & Steele, 2004).

At the time of this study, University 2 was in the process of implementing new resources for teaching faculty. These resources were meant to support faculty in teaching students with disabilities, emphasized inclusive instructional practices, and were delivered in three forms: (1) workshops, (2) print resources delivered online as e-newsletters, and (3) website resources. The funding source behind these initiatives was the U.S. Department of Education, Office of Postsecondary Education's Demonstration Projects to Ensure Quality Higher Education for Students with Disabilities.

First, faculty were invited to attend an intense four-day workshop in the summer. The workshop content focused on disability definitions, legal obligations, providing accommodations, promotion of inclusive strategies in the planning for and delivery of instruction, as well as alternate, inclusive strategies for assessing student knowledge and acquisition of course content. Sixty-five faculty participated in these workshops over a three-year period and were compensated for their time. In addition to attending the 4-day summer institute, these participants were asked to disseminate the workshop content to their colleagues in their respective departments. Participants were given resources specifically for the purpose of dissemination. Essentially, this was a "train-the-trainer" approach to changing the university culture so that a large number of faculty would become more informed about disability-related topics.

Second, researchers and DS staff collaborated in writing regular issues of an e-newsletter. These newsletters were emailed to all faculty and staff at the university. There were six issues per academic year, and each issue focused on a specific topic area. Some examples of e-newsletter topics are procedural information from the DS office in terms of accommodations, assistive technology, inclusive strategies for planning and delivering instruction, inclusive assessment strategies, and disability-related laws and concepts. Third, the DS office was "rebranded" with a new name- the Accessible Education Center- and a new website that was completely overhauled to be more user-friendly and features an extensive faculty resource section.

At University 2, the survey was administered to 1,011 tenure-line and instructional faculty. From this population we received responses from 23% of the target population (n = 231). The study sample included 115 males (49.7%) and 116 females (50.3%). Consistent with the overall demographics of the university, 86% of respondents were white, 4% were Asian American (4%), 3% reported Multiple Races, 2% were Latino less than 1% were American Indian/Alaskan Native, and 5% declined to report race.

Thus, during the time of the current study, both universities were in the process of implementing faculty outreach programs. Inclusive instruction based on UD was at the forefront of these initiatives. University 1 was not funded for specific targeted outreach to faculty, while University 2 was funded through the Office of Postsecondary Education.

Measure

The Inclusive Teaching Strategies Inventory (ITSI) was administered at both universities. The ITSI measures seven constructs in the broad areas of disability-related knowledge and laws, and inclusive instructional practices based on the tenets of Universal Design across several frameworks. These constructs are: (a) Accommodations, (b) Accessible Course Materials, (c) Course Modifications, (d) Inclusive Lecture Strategies, (e) Inclusive Classroom, (f) Inclusive Assessment, and (g) Disability Laws and Concepts. The ITSI has undergone multiple development phases and validation studies (Lombardi & Murray, 2011; Lombardi, Murray, & Gerdes, 2011). In the most recent phase, findings from a crossvalidation study using exploratory

and confirmatory factor analysis confirmed this seven-factor structure (Lombardi & Sala-Bars, 2013). Each item begins with the stem "I believe it's important to". The response options range from 1 (*strongly disagree*) to 6 (*strongly agree*).

The first subscale, Accommodations, contains eight items specific to accommodations requests from students (e.g., "make individual accommodations for students who have disclosed their disability to me). The second subscale, Disability Law and Concepts, contains six items that relate to knowledge of Section 504 of the Rehabilitation Act and the Americans with Disabilities Act, as well as understanding of the terms "disability" and "Universal Design". The third subscale, Accessible Course Materials, contains four items relevant to use of a course website, posting electronic course materials, and allowing students to submit assignments in electronic formats.

The fourth subscale, Inclusive Lecture Strategies, contains four items that measure teaching strategies specific to a typical postsecondary lecture-style class, including simple strategies faculty may utilize to assess student comprehension such as repeating student questions to the class before answering and periodically summarizing key points throughout the lecture. The fifth subscale, Inclusive Classroom, contains nine items related to presentation of course content with a particular emphasis on flexibility, use of technology, and various instructional formats (e.g., small group work, peer-assisted learning, and hand-on activities). This subscale also includes items that measure willingness to make announcements in class or include written statements in the course syllabus that encourage students to disclose a disability or any barriers to learning they anticipate they might have. The sixth subscale, Inclusive Assessment, contains four items pertaining to flexible response options on exams, non-traditional exams, and flexibility with deadlines.

The seventh subscale, Course Modifications, contains 4 items related to major changes in course assignments or requirements for students with and without disabilities (e.g., "allow a student with a documented disability to complete extra credit assignments" and "allow any student to complete extra credit assignments"). These are called modifications because they are not typical accommodations that faculty are required to provide, and in some cases faculty might see these changes as going above and beyond what they ought to do to support students with disabilities. Further, we include items about students with disabilities and any students on this subscale because we anticipate that if faculty are flexible in these areas, they tend to be flexible for students regardless of whether they have a disability. While these modifications may not always be appropriate, we believe it is important to measure the willingness of faculty to provide these types of modifications for students with and without disabilities. By measuring this willingness, DS providers can get a better sense for areas where faculty may be more or less flexible with course requirements.

Reliability of the ITSI subscales was examined with Cronbach's alpha. These values ranged from .70 to .87. All values met acceptable criteria for internal consistency, with four of the seven subscales meeting preferable criteria of .80 or greater (Nunnally, 1975). Alpha values for each subscale, in descending order, were as follows: Disability Law and Concepts (= .87), Accommodations (= .85), Inclusive Classroom (= .84), Inclusive Lecture Strategies (= .80), Course Modifications (= .76), Inclusive Assessment (= .71), and Accessible Course Materials (= .70).

Along with the survey, faculty were asked to report prior disability-related experience. Prior disability-related experience was measured with two variables: prior training (yes/no) and type of training, which included more intensive training opportunities (workshops and courses) and less intensive opportunities (read articles or books, visited websites).

Procedures

At University 1, faculty were emailed the survey during the Fall 2011 semester. The email contained the purpose of the study, an informed consent statement, a link to the survey, and a link to "opt-out" of the survey. No incentives were offered or provided in this study. Non-respondents were contacted with email reminders an additional three separate times over a six-week period during the semester. A memorandum regarding the availability to participate in the study was also handed out at one faculty senate meeting and individuals that took a copy were asked to relay the information to their department's faculty members.

At University 2, an email list of 1,011 faculty was obtained from the Office of Institutional Research on campus. During the Spring of 2011, all full-time teaching faculty received a recruitment email that described the research project and a link to the online ITSI. Participants were asked to complete the survey on a voluntary

basis and were offered a $5 coupon to a campus café regardless of whether they completed the survey. Prior to participating in the survey, participants completed an online consent form. If participants did not consent, they were not able to advance to the survey. Following the initial contact, three additional follow-up requests were sent spaced approximately two weeks apart.

Data Analysis

Analyses were designed to evaluate associations between participation in prior training, training intensity, and the implementation of inclusive teaching practices. Although we were primarily interested in training as potential influence on faculty attitudes toward inclusive instruction, prior research suggests that faculty gender is often related to faculty attitudes about students with disabilities (Leyser, Vogel, Wyland, & Brulle, 1998; Lombardi & Murray, 2011; Lombardi, Murray, & Gerdes 2011, Murray, Wren, & Keys, 2008; Skinner, 2007). Therefore, in our analyses we examined gender differences toward disability-related topics and inclusive instruction. To examine the influence of institutional context on faculty attitudes, we compared the descriptive statistics of compared subgroup scores according to gender and prior training. Also, we conducted hierarchical regression models to determine whether these demographic characteristics and self-reported training opportunities positively influenced faculty attitudes pertaining to (a) Accommodations, (b) Accessible Course Materials, (c) Course Modifications, (d) Inclusive Lecture Strategies, (e) Inclusive Classroom (f) Inclusive Assessment, and (g) Disability Laws and Concepts. We selected hierarchical multiple regression in order to control for the effects of gender and isolate the unique variance associated with institutional factors that pertain to training opportunities.

Results

Descriptive Statistics

First, we examined mean subscale scores by institution, gender, and prior training (See Table 1). Overall, mean scores ranged across the ITSI subscales from 2.70 (Course Modifications) to 5.16 (Inclusive Lecture Strategies). Thus, the mean response of all faculty in our sample indicated they disagree to somewhat disagree with providing extra credit opportunities to reducing the reading load for students with and without disabilities. The overall faculty mean response was agree to strongly agree in rating the importance of using inclusive lecture strategies, such as repeating student questions to the class before answering and periodically summarizing key points throughout the lecture. There were four subscales with overall mean scores between somewhat agree and agree, which were Inclusive Assessment, Inclusive Classroom, and Accessible Course Materials. Overall, the mean score for Disability Law and Concepts fell between somewhat disagree and somewhat agree, indicating some faculty still are unsure of legal mandates around disability in higher education.

Mean subscale scores by institution, gender, and prior training were compared. A trend level analysis shows at both institutions, females with prior disability-related training scored the highest on Accommodations, Disability Law and Concepts, Inclusive Lecture Strategies, and Inclusive Classroom. On two other subscales, Accessible Course Materials and Inclusive Assessment, males with prior training scored highest at University 1 whereas females with prior training scored the highest at University 2. In fact, faculty with prior training, regardless of gender and university, scored higher on all ITSI subscales.

Of those faculty who self-reported they received prior training, we examined type of training. For these comparisons, we selected variables from the set of items on prior training in the survey. We coded these variables as *more intensive* training opportunities (workshops and courses) and *less intensive* training opportunities (read articles or books, visited websites). Table 2 shows the frequency of responses for more and less intensive training opportunities by gender and university. Respondents were coded as "yes" if they selected at least one type of training opportunity. For example, if a faculty member reported they read a disability-related article, this response was coded as a "yes" under the less intensive training category. For more and less intensive training opportunities, roughly one quarter of faculty in both university samples reported "yes". This finding suggests there is no striking difference between more and less intensive training opportunities and faculty willingness to participate. In other words, whether a workshop or online article is offered, faculty are not necessarily more or less likely to participate. Thus, it is especially important for DS personnel to offer a range of training opportunities that are flexible to meet the various needs of faculty schedules.

Table 1

Itsi Subscale Mean Scores by Gender and Prior Training Experience

		n	ACC	DLC	ACM	ILS	IC	IA	CM
University 1		381	4.79 (.90)	3.85 (1.12)	4.65 (1.06)	5.17 (.72)	4.63 (.87)	3.83 (1.11)	2.67 (1.08)
	Females with training	55 (16%)	5.13 (.76)	4.83 (.93)	4.65 (1.16)	5.36 (.73)	5.09 (.68)	4.12 (.99)	2.90 (1.08)
	Females without training	85 (25%)	4.63 (.88)	3.64 (1.06)	4.41 (1.11)	5.14 (.78)	4.55 (.78)	3.78 (1.16)	2.60 (1.00)
	Males with training	50 (15%)	5.03 (.82)	4.57 (.95)	4.93 (.95)	5.23 (.60)	4.90 (.73)	4.16 (.92)	3.03 (1.02)
	Males without training	145 (43%)	4.65 (.95)	3.37 (.97)	4.75 (.95)	5.09 (.73)	4.46 (.94)	3.68 (1.11)	2.56 (1.14)
University 2		231	5.01 (.74)	3.81 (1.06)	4.81 (.81)	5.14 (.73)	4.28 (.65)	4.22 (.99)	2.72 (.99)
	Females with training	55 (24%)	5.35 (.66)	4.38 (.83)	5.18 (.68)	5.47 (.52)	4.70 (.45)	4.66 (.89)	2.91 (.90)
	Females without training	60 (26%)	4.93 (.80)	3.46 (.84)	4.63 (.77)	5.18 (.62)	4.26 (.50)	4.17 (.91)	2.77 (.91)
	Males with training	37 (16%)	5.00 (.57)	4.09 (.73)	4.65 (.94)	5.10 (.65)	4.31 (.60)	4.19 (.92)	2.47 (.92)
	Males without training	78 (34%)	4.84 (.76)	3.40 (.94)	4.74 (.78)	4.91 (.87)	3.97 (.72)	3.95 (1.05)	2.64 (1.12)
Overall		565	4.87 (.85)	3.82 (1.07)	4.72 (.95)	5.16 (.73)	4.50 (.80)	4.00 (1.07)	2.70 (1.05)

Note. ACC= Accommodations, DLC= Disability Law and Concepts, ACM= Accessible Course Materials, ILS= Inclusive Lecture Strategies, IC= Inclusive Classroom, IA= inclusive Assessment, CM= Course Modifications. Standard deviation in parenthesis (SD)

Table 2

The Number of More and Less Intensive Training Opportunities by University

	University 1	University 2
More Intense Training		
Yes	91 (26%)	73 (32%)
No	264 (74%)	158 (68%)
Less Intense Training		
Yes	74 (21%)	67 (29%)
No	281 (79%)	164 (71%)

Predictors of Faculty Attitudes

Hierarchical regression analyses were conducted to evaluate the extent to which faculty gender and prior training experiences predicted their attitudes toward disability and inclusive instruction as measured by the seven ITSI subscales. For these analyses, subscale scores were regressed on gender at step 1 and institutional factors at step 2. We constructed our regression models in this way so that we could isolate the unique variance associated with gender and specific contextual factors such as institution, whether or not they had received disability-related training, and type of training (see Table 3).

The first equation presented in Table 3 shows the associations between predictor variables and the provision of Accommodations. The full model accounted for approximately 9% of the variance in faculty perceptions of accommodations, $R^2 = .09$, $F(5, 559) = 10.78$, $p < .001$. An examination of the standardized beta weights indicates that institution ($\beta = .11$, $p < .05$), and receiving less intensive training ($\beta = .17$, $p < .05$) were the only variables that made unique contributions to the equation. Essentially, these findings suggest that faculty at University 2 reported greater willingness to provide accommodations than faculty at University 1. Also, faculty who had received less intensive training (e.g., read books, visited websites) were more willing to provide accommodations to students than faculty who reported they received no prior training.

The second equation presented in Table 3 is Disability Law and Concepts. The combination of gender and institutional factors accounted for approximately 27% of the variance in Disability Law and Concepts scores $R^2 = .27$, $F(5, 559) = 35.19$, $p < .001$. Gender ($\beta = .10$, $p < .05$), institution ($\beta = -.09$, $p < .05$), and prior training ($\beta = .35$, $p < .05$) made unique contributions to this equation. After controlling for gender, institutional factors (step 2) contributed approximately 24% of the variance to the equation, $\Delta R^2 = .239$, $F(4, 559) = 38.97$ $p < .001$. Of the institutional factors, institution ($\beta = -.09$, $p < .05$), and prior training ($\beta = .35$, $p < .05$) both made unique contributions to the equation. These findings suggest that training opportunities, if taken advantage of, could play a significant role in influencing faculty attitudes regarding disability law and concepts regardless of gender.

Moving to the fifth equation in Table 3, Inclusive Classroom, the combination of gender and institutional factors accounted for approximately 18% of the variance in scores $R^2 = .18$, $F(5, 559) = 19.61$, $p < .001$. The standardized beta weights showed gender ($\beta = .13$, $p < .05$), institution ($\beta = -.26$, $p < .05$), and prior training ($\beta = .25$, $p < .05$) made unique contributions to the equation. After controlling for gender, institutional factors (step 2) contributed approximately 15% of the variance to the equation, $\Delta R^2 = .149$, $F(4, 559) = 20.82$, $p < .001$. These findings suggest that institutional factors play a significant role in influencing faculty attitudes regarding inclusive classroom factors regardless of gender.

Finally, the overall combination of gender and institutional factors accounted for 11% of the variance in the sixth equation, Inclusive Assessment, $R^2 = .11$, $F(5, 559) = 10.21$, $p < .001$. After controlling for gender, institutional factors (step 2) contributed approximately 9% of the variance to the equation, $\Delta R^2 = .09$, $F(4, 559) = 16.78$, $p < .001$. As with the Inclusive Classroom scores, these findings for Inclusive

Table 3

Hierarchical Regression Model Results and Standardized Beta Weights for ITSI Subscales

	1. ACC		2. DLC		3. ACM		4. ILS		5. IC		6. IA		7. CM	
Block	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1:	.01*		.03*		.01		.02*		.03*		.02*		.01	
Gender		.04		.10*		-.07		.12*		.13*		.07		.04
Step 2: Contextual influences	.08**		.24**		.02*		.03		.15**		.09**		.01	
Institution		.11*		-.09*		.06		-.04		-.26**		.15**		-.01
Prior training		.03		.35**		.07		.16*		.25**		.03		.04
More intensive training		.08		.08		-.02		-.06		.01		.05		-.01
Less intensive training		.17*		.07		.08		.03		.02		.15*		.09
Total R^2	.09**		.27**		.03*		.05		.18**		.11**		.02	

Note. Standardized beta weights are shown when all variables were included in the equation. ACC= Accommodations, DLC= Disability Law and Concepts, ACM= Accessible Course Materials, ILS= Inclusive Lecture Strategies, IC= Inclusive Classroom, IA= inclusive Assessment, CM= Course Modifications. *$p < .05$. **$p < .001$.

Assessment suggest that institutional factors play a significant role in influencing faculty attitudes. The standardized beta weights showed institution ($\beta = .15$, $p < .05$), and less intensive training ($\beta = .15$, $p < .05$) contributed significant unique variance to the equation. Thus, faculty at University 2 were more likely to positively endorse inclusive assessment practices, and faculty who reported reading books and websites on disability-related topics scored significantly higher on Inclusive Assessment.

In summary, gender, institution, and prior training contributed unique variance in three of the seven models. After controlling for gender, the institutional factors at step 2 contributed significant variance to the equation in five of the seven models, which were for the ITSI subscales Accommodations [$\Delta R^2 = .082$, $F(4, 559) = 12.13$, $p < .001$], Disability Law and Concepts [$\Delta R^2 = .239$, $F(4, 559) = 38.97$, $p < .001$], Accessible Course Materials [$\Delta R^2 = .022$, $F(4, 559) = 2.92$, $p < .001$], Inclusive Classroom [$\Delta R^2 = .149$, $F(4, 559) = 20.82$, $p < .001$], and Inclusive Assessment [$\Delta R^2 = .088$, $F(4, 559) = 10.79$, $p < .001$]. Finally, the less intensive training predictor added significant unique variance to two of the seven models, which were for the subscales Accommodations ($\beta = .17$, $p < .05$) and Inclusive Assessment ($\beta = .15$, $p < .05$). These findings suggest that training opportunities at both institutions positively impacted faculty regardless of gender.

The combination of gender and institutional factors did not account for significant variance in the third equation, Accessible Course Materials, the fourth equation, Inclusive Lecture Strategies, and the seventh equation, Course Modifications. These findings suggest there are other factors that explain faculty attitudes in these areas that were outside the scope of this study.

Discussion

The purpose of this study was to assess faculty attitudes toward disability-related topics and inclusive instruction at two universities. In both settings we used the same measure, the Inclusive Teaching Strategies Inventory. The survey instrument included items pertaining to prior training received, amount, and type, which allowed for comparisons between faculty who had and had not been exposed to disability-related training. Specific differences existed between University 1 and University 2. University 2 had more extensive, ongoing outreach to faculty (e.g., four-day workshop, newsletters, website) regarding academic accommodations and UD considerations as well as grant funding to provide financial incentives for many faculty to participate. In comparison, University 1 provided business-as-usual services to students with disabilities through the DS office, and provided online resources to faculty that included UD-related topics.

We were particularly interested to learn about the role of gender and institutional factors in predicting faculty attitudes given mixed findings in the current literature (Leyser, et al., 1998; Lombardi & Murray, 2011; Lombardi, et al., 2011; Murray et al., 2008; Skinner, 2007; Zhang, et al., 2010). To summarize our findings, females with prior disability-related training scored the highest on Accommodations, Disability Law and Concepts, Inclusive Lecture Strategies, and Inclusive Classroom. On two other subscales, Accessible Course Materials and Inclusive Assessment, males with prior training scored highest at University 1 whereas females with prior training scored the highest at University 2. Faculty with prior training, regardless of gender and university, scored higher on all ITSI subscales. These findings confirm the importance of training opportunities for college faculty in increasing awareness and support to students with disabilities. While gender also played a role in shaping these attitudes, males with prior training opportunities scored highest on two of the inclusive instruction constructs. These results suggest that regardless of gender, training is most crucial in influencing faculty attitudes.

The regression model results further confirmed the importance of training opportunities at both institutions. Institutional factors were modeled at step 2 in order to examine the cumulative variance separate from gender to better understand what malleable factors could meaningfully influence faculty attitudes toward disability and inclusive instruction. The institutional factors contributed significantly to five of the seven models, which were for the ITSI subscales Accommodations, Disability Law and Concepts, Accessible Course Materials, Inclusive Classroom, and Inclusive Assessment. Essentially, these findings suggest faculty attitudes in these areas are influenced by support and training opportunities at their institutions regardless of gender.

In two of the models, specifically Accommodations and Inclusive Assessment, the less intensive training variable contributed significant unique variance, which suggests faculty may be more responsive to books and articles if made accessible (e.g., on a dedicated faculty

resource web page). However, the overall findings reported in Tables 2 and 3 show there are no particularly striking differences between more and less intensive training opportunities. Ultimately, these findings are promising and suggest faculty attitudes could improve if a variety of training opportunities are available. Specifically, the intensity of the training matters less than simply providing a wide range of training opportunities to faculty.

Limitations and Future Directions

There are several limitations to consider when interpreting the results of this study. First, although the universities were similar in some respects (e.g., size, public institutions, research based), the researchers did not compare faculty across departments. Future studies comparing institutions should examine differences in study participants based upon prior disability-related/UD training and their academic affiliation (e.g., Special Education versus Science). It will be important to document the number of study participants from specific academic disciplines, as it will provide insight into faculty attitudes and actions based upon their academic backgrounds and teaching areas. Second, self-reported attitudinal data was collected in which some participants may have provided socially desirable responses that were not exactly their true beliefs. Confidentiality was assured to all participants to decrease the likelihood of socially desirable responses. Third, a large majority of faculty at both institutions did not participate in the study. Both samples represented about one-fourth of the entire faculty. Therefore it may be difficult to generalize findings to other institutions beyond the two compared institutions in this study.

Implications

These findings are significant for postsecondary DS providers. Specifically, based on the activities that occurred at both institutions, we recommend the following possible faculty outreach strategies:

Use climate assessments. Climate assessments provide a data-based snapshot of the culture on university campuses (Stodden et al, 2011). In this study, we used the ITSI to explore faculty attitudes toward inclusive instruction and disability as a type of climate assessment. At both participating universities, the ITSI results gave postsecondary DS a better sense for how to target training efforts. Further, the climate assessment could be used again as a type of "post" test to determine effectiveness of training efforts. Importantly, data-based decisions are emphasized through these pre- and post-test processes, and resources are more efficiently allocated. In this study, the ITSI was administered across all departments at both universities and the data were analyzed at the university level. However, the survey could easily be administered at the academic school or departmental level in university settings, which may be useful for DS providers who wish to assess departments in order to better target outreach efforts.

Provide a range of resources. It is always difficult to know how much time to allocate to faculty trainings. We recommend DS providers plan for one large training event to last 2 to 4 days, while at the same time organize the training content so that it could be delivered in small modules online or in print materials. With this strategy, consistent messages will be delivered across multiple formats. This strategy is beneficial because a wide range of faculty may access the resources according to their time and needs, and DS providers will not have to duplicate efforts in creating resource materials. It is also be helpful to later follow-up with faculty who participated in training. Or, provide campus resource contact information to faculty in case they have questions in the future. Most importantly, the findings from this study suggest that more and less intensive training opportunities are equally effective for faculty. Thus, breaking up the training content into large and small chunks is especially important so that faculty may access it in different ways.

Use scenarios as exemplars. A major critique of the UD frameworks refers to challenges in transferability to instructional planning (Edyburn, 2010). Oftentimes, faculty know they must incorporate inclusive instructional practices but are not sure of how to go about this process. Faculty may even have positive attitude toward disability-related themes and inclusive instruction but are not actually embedding the principles into their teaching practices (Cook et al., 2009; Lombardi, Murray, & Gerdes, 2011). We recommend using scenarios to help illustrate inclusive classrooms. Scenarios provide ready examples that allow for faculty to visualize their own classrooms. Scenarios could be described in newsletter or website content, or they could be used as part of a workshop activity.

Provide incentives. Faculty may have to decide which training opportunities to attend at their institutions. Providing incentives for faculty to attend may increase attendance at trainings focused on inclusive instruction. For example, incentives such as a certificate

of training attendance or completion could be useful for faculty to include in yearly faculty service reports. Financial or other incentives (e.g., lunch provided) would be helpful as well, however it is possible to move forward with these recommendations without funding.

Collaborate. When reaching out to faculty, it will be important for campus DS providers to collaborate with other departments on campus in order to increase faculty participation and deliver quality faculty development experiences. For example, it may be helpful for DS providers to provide UD training in conjunction with a university office that specializes in faculty teaching effectiveness (e.g., instructional design, teaching excellence). Administrative support would also be very helpful in moving forward with an instructional UD agenda (Moriarty, 2007; Orr & Hammig, 2009).

Ultimately, the continuing increase in prevalence of college students with disabilities shows that more and more faculty will teach students with diverse learning styles. Regardless of available funding, DS personnel will face the challenge of providing a variety of resources to faculty. The findings from this study show there are effective and efficient ways to support faculty increasing disability awareness and adopting inclusive instructional practices. As such, DS providers ought to focus their outreach efforts on empowering faculty with the resources they will need to support college students with disabilities.

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